



# Knowledge Management Tools and Techniques - Public Health Data Organization for Knowledge Management in Indiana

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Roland Gamache, Ph.D., MBA  
Indiana State Department of Health  
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# From Data to Knowledge Management

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- Definitions
- The thought process for the development of the Indiana Operational Data Store
- Data quality
- Current Knowledge Management processes in Indiana



# Knowledge Management

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- Knowledge is information in context\*
- Knowledge management is an organization's or community's planned approach to collecting, evaluating, cataloging, integrating, sharing, improving, and generating value from its intellectual and information-based assets\*

\* "Knowledge Management for Public Health Professionals", ASTHO



# Knowledge Management Impact on Public Health Policy

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- Health policy developed by information gained through data integrated from multiple program areas
- Community health improvement
- Environmental health
- Engaging the public
- Decision support systems



# Core Components of Knowledge Management

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- Nature of the organizational structure
- Condition of the content of the organization
- Processes that are used to collect, manage, and disseminate information
- Technology infrastructure



# Four Factors to Consider during the Development of an Operational Data Store

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- Identification of primary events
- Data validation
- Data enhancement
- Reporting



# Health Informatics Policy Goals

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- Goals

- Improve health quality of the community
- Improve efficiency
- Case identification/Public health surveillance
- Public health policy development
- Improve information dissemination



# Identification of Primary Events - Data Structure

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- Develop a person- or case- centric public health data system?





# Identification of primary events – A Brief Project History

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- Pilot project for the Birth Defects Registry
- Development of a Child Health Profile linking births, deaths, and hospital reported birth defects



# PMI/Case Comparison

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- Person
  - Population demographics
  - Location
  - Time
  - Links to many data sources
- Case
  - Location
  - Time
  - Links to fewer data sources



# Data Structure

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- Master Person Index
  - One-to-one events
    - Birth
    - Death
- Case-centric events
  - Location and time
  - One-to-one or one-to many
    - Environmental test
    - Individual lab test with no ID



# Data Schema

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- Primarily a PMI
- When needed, case-centric data are included
  - Case-centric data are linked to individuals by location and time
  - Events used for case identification that do not include a person ID, are generally linked to an individual during case management



# Data Integration

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- Matching
  - Linking
  - Merging



# Validation

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- Multiple step process
- Verify that the data entered was entered as written
  - What is written may not be correct
- Duplicates
  - Finding
  - Fixing
- Changing business rules



# Data Stewardship

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- Process to manage the data
- Business rules
  - Automation
  - Intervention



# Information Dissemination

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- Web based systems for information dissemination
- Easy point of entry
- Meaningful information display





# Reporting with Integrated Data

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- Reproducing current reports does not add value by it does help validate data integrity
- New reports need a community, agency-wide approach to develop



# Indiana Projects

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- Birth defects
- Quality Indicators
- Medicaid
- Case Identification
- Overall data quality
- Lead data reporting
- Low birth weight



# Summary

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- The PMI enables population-based analysis of data through the aggregation of individual events
- Data validation is an on-going concern for an integrated data system
- Data integration inherently provides knowledge management solutions